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Mössbauer study of surface layers of high-speed steel after laser treatment

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Abstract

Mossbauer measurements in the backscattering geometry have been employed to determine an effect of the laser pulse duration on phase transformations and tungsten redistribution in the laser-affected area in the Tl high-speed steel. It has been found that after laser processing in the surface layer 10 μm thick the phase composition becomes homogeneous, the quantity of the retained austenite decreases with the rise in the laser pulse duration, the solid solution as a result of partial solution of carbides is saturated with tungsten up to 10 and 14 percent, the pulse durations being 1.2 and 6.0 ms respectively. © 1991 J.C. Baltzer A.G., Scientific Publishing Company.

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